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Apple: Codling moth

Use Integrated Pest Management (IPM) for successful plant problem management.

Biology

The gray wings of adult codling moths are marked with dark brown bands near the wingtips. Wingspan is 1/2" to 3/4". Adult females lay eggs on leaves or fruit. The larvae burrow into fruits, usually through the blossom end, where they eat the core and seeds. The fruit appears dirty brown or rotted in the center when cut open. Mature larvae are cream-colored to pinkish-white with brown heads and about 3/4" long. The larvae tunnel out of the fruit and make cocoons under bark or in the ground beneath the tree. They overwinter in the cocoons and pupate in the spring. Adults typically emerge around May-June. There can be two generations per year. Codling moth is a serious problem in commercial apple and pear orchards. Because home-grown fruit trees can serve as alternate hosts for codling moth, homeowners in fruit-growing areas are encouraged to manage this pest to help control regional codling moth infestations. Control may be required by law in some regions--contact your local extension office if you have questions.

Management Options

Non-Chemical Management

- ~ Remove loose bark to eliminate possible hiding places for cocoons.
- ~ Some naturally-occurring parasites may help control codling moth populations. Avoid use of broad-spectrum insecticides which may kill beneficial insects.
- ~ Remove brush, debris, and culled fruit from orchards.
- ~ Wrap trunk with corrugated cardboard or burlap to trap migrating larvae. Periodic removal of these tree wraps to destroy cocooning larvae can help a lot.
- ~ Bagging fruit may be effective against codling moth if the bags are placed before adult moths emerge in the spring. Options include paper lunch bags, wax paper bags, and double-layer Japanese fruit bags. Nylon mesh "footie" bags are useful for apple maggot, but may be less effective against codling moth. Clear plastic sandwich bags may retain moisture and contribute to disease problems on the bagged fruit. Bags should be placed on UNINFESTED fruit 4-6 weeks after petal fall (when the fruit is approximately dime-sized) and should be left on for the entire growing season. Bags can be removed about 3 weeks before harvest to improve fruit color, but exposed fruit may be attacked by second-generation codling moth adults emerging mid-July to early September.
- ~ When purchasing an apple tree, seek out apple varieties grafted onto dwarfing rootstock to help manage tree height. Through proper tree training and pruning, maintain the height of the tree to less than ten-feet tall. See publication PNW 400 Training and Pruning Your Home Orchard.
- ~ Periodically scout your apple tree for insect-infested fruit from late May to fruit harvest. Pick off and destroy (by crushing or by placing in plastic bag and leaving bag in hot sun for a week) any infested fruit to stop larval development. DO NOT COMPOST infested fruit as larvae naturally leave the infested fruit to pupate in the soil.

Select non-chemical management options as your first choice!

Chemical Management

IMPORTANT: *Visit Home and Garden Fact Sheets for more information on using pesticides*

Apply about 10 days after full petal fall (all petals are off) or 17 to 21 days after full bloom. Product reapplications following label directions are necessary throughout late spring and summer. Esfenvalerate, carbaryl and malathion are toxic to bees. Do not apply products containing these ingredients on or near blooming plants. To minimize risk to bees, apply in the evening after bees have stopped foraging for the day. Homeowners should not make foliar applications to trees over 10 ft tall. Consult a commercial pesticide applicator for treatment of trees and shrubs over 10 ft. tall.

Listed below are examples of pesticides that are legal in Washington. Always read and follow all label

directions.

- ~ Acetamiprid RTU Insecticide
 - *active ingredient: acetamiprid*
 - *EPA reg no: 8033-21*
- ~ Bonide Captain Jack's Deadbug Brew R-T-U [Organic]
 - *active ingredient: spinosad (spinosyn A+D)*
 - *EPA reg no: 4-472*
- ~ Bull's-Eye Bioinsecticide
 - *active ingredient: spinosad (spinosyn A+D)*
 - *EPA reg no: 62719-314-56872*
- ~ Monterey Bug Buster II
 - *active ingredient: esfenvalerate*
 - *EPA reg no: 1021-1778-54705*
- ~ Ortho Flower, Fruit & Vegetable Insect Killer R-T-U
 - *active ingredient: acetamiprid*
 - *EPA reg no: 8033-21-239*
- ~ Surround At Home Crop Protectant
 - *active ingredient: kaolin clay*
 - *EPA reg no: 61842-18-56872*
- ~ This list may not include all products registered for this use.

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Images



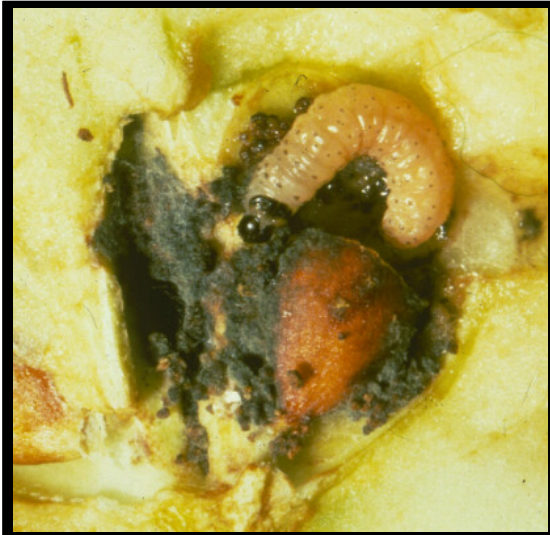
~ Caption: Red Delicious apple infested with codling moth larvae
~ Photo by: M. Bush



~ Caption: Cardboard strips secured to trunk of apple tree for IPM
~ Photo by: M. Bush



~ Caption: Codling moth exit hole
~ Photo by: R.S. Byther



~ *Caption: Codling moth feeding inside apple core*
~ *Photo by: J.F. Brunner*



~ *Caption: Adult codling moth on crabapple leaf*
~ *Photo by: M. Bush*



~ *Caption: Home orchard with bagged apples*
~ *Photo by: M. Bush*